REMARKS

This Amendment after Final is filed in response to the Final Office Action mailed March 30th, 2006. All objections and rejections are respectfully traversed.

Claims 1-20 are now pending in the case.

Claims 1, 5-7, 9, 19 and 20 have been amended to better claim the invention.

No claims have been added.

Amendment of Claims Appropriate for Entry After Final Rejection

While the Applicant has amended several of the claims in this case, the Applicant still believes this amendment is suitable for entry after final rejection. The Applicant's amendments do not add new limitations to the claims that would require additional searching by the Examiner, but rather mainly address the use of present participle tense verbs (i.e. verbs ending in "ing") in apparatus claims, which may cause confusion as to the statutory class of the claims. Accordingly, the Applicant has replaced such verbs with phases indicating that the apparatus is "configured to" or "adapted to" perform the specified tasks. For example, in claims 1 the Applicant has replaced the verb "receiving" with the phrase "configured to receive." Due to the limited scope of these changes, the Applicant respectfully urges this amendment is suitable for entry.

Objection to the Abstract

At paragraph 1 of the Final Office Action the Abstract was objected to as being too long. The Applicant now amends the Abstract to include approximately 136 words. Accordingly the Abstract should now be non-objectionable.

Claim Rejection- 35 U.S.C. §103

At paragraphs 2-3 of the Final Office Action, claims 1, 3 and 5-20 were rejected under 35 U.S.C. §103(a) as unpatentable over Lyon et al., U.S. Patent No. 6,333,917 (hereinafter Lyon), in view of Bonomi et al., U.S. Patent No 6,069,872 (hereinafter Bonomi).

The Applicant's claim 1, representative in part of the other rejected claims, sets forth:

> 1. A switch for a computer network, the switch to receive ATM cells from the computer network, comprising:
>
> a switching fabric configured to receive a cell at an input port, said switching fabric selecting a route there-through for said cell to an output port;
>
> at least one queue within said switching fabric, said queue having an associated threshold, said switching fabric configured to determine the number of cells present in said queue, said switching fabric further configured to determine if the next arriving cell for said at least one queue fills said queue above said threshold, and in the event that said at least one queue is filled above said threshold, then write a flag bit within said cell to a "set" state; and
>
> ***a traffic manager configured to compute a ratio of cells having said flag bit set to a total number of cells received at an output port, and in response to a value of said ratio either discard said cell or forward said cell onto an output link of said computer network***, said traffic manager adapted to select a cell to be discarded on a random basis.

Lyon discloses an enhanced random early detection (RED+) scheme for use within a switching fabric or on linecards of a network device. *See* abstract. As part of the RED+ scheme, Lyon discloses a Marking Rate Generator (see Fig. 5, item 74 and all of Fig. 6) that determines a rate at which to tag/drop packets. *See* col. 9, lines 6-11 and 19-21. The Marking Rate Generator takes as an input a "queue fill" measurement, and integrates the "queue fill" measurement. *See* Fig. 6, box 80 and col. 9, lines 21-25. The result is then normalized and scaled. *See* Fig 6, box 82 and col. 9, lines 26-30. After the normalization, a desired queue fill is subtracted from the now integrated, normalized

queue fill measurement. *See* Fig. 6, item 84 and col. 9, lines 31-36. This result is then used by a controller, a lookup table, and other circuitry to determine a tag/drop rate for packets. *See* col.9, lines 34-38 and Fig 6.

As is apparent, access to the "queue fill" measurement is needed in Lyon's disclosed technique to determine the tag/drop rate. Without access to a measurement of the queue fill, the technique would not likely function.

Bonomi discloses a congestion control technique with separate fair bandwidth allocation and congestion control. *See* col. 2, line 66 to col. 3, line 2. To achieve fair bandwidth allocation, a switch adjusts a rate for a particular virtual connection (VC) in response to queue length information and other factors. *See* col. 3, lines 2-7. To control congestion, queue length again is utilized among other factors. *See* col. 3, lines 12-16

As in Lyons, it is apparent that access to "queue length" information is the needed for Bonomi's techniques.

The Applicant recognizes that, in some system, access to queue information may be limited or not available outside of the queue. Specifically, at page 3 of the background potion of the specification the Applicant comments (emphasis added):

> However, when a switch fabric is implemented in a set of commercial computer chips, the queues within the switch fabric are ***not available*** to the switch designer. A switch designer then can not implement the RED algorithm.

Such a lack access to queue information would present a serious issue in a system built according to the combined teachings of Lyon and Bonomi.

The Applicant addresses the issues discussed above, in part, by claiming "***a traffic manager configured to compute a ratio of cells having said flag bit set to a total number of cells received at an output port, and in response to a value of said ratio either discard said cell or forward said cell onto an output link of said computer network***"

Rather than rely upon having access to queue information, such as a "queue fill" measurements, as suggested in both Lyon and Bonomi, the Applicant simply computes ***a ratio of cells having said flag bit set to a total number of cells received at an output port***. Such information is generally available at the output port without direct access to queue measurements. The Applicant further teaches, ***in response to a value of said ratio*** the switch may discard a cell or forward a cell onto an output link.

In addition to the above arguments, the Applicant would like to highlight that the portion of Lyon cited by the Examiner (i.e. col. 8, line 61-66, Fig. 4 and Fig. 5) for these features cuts against rejection. Indeed, the cited portion specifically discusses the use of the above discussed "queue fill" measurements. *See* col. 8, line 66. Thus, the cited portion of Lyon may not fairly be interpreted as disclosing the Applicants claims that instead use a ratio of cells received at the output port.

For the reasons discussed above, the Applicant respectfully urges that the combination of Lyon and Bonomi is legally insufficient to make obvious the present claims under 35 U.S.C. §103.

At paragraphs 4 of the Final Office Action, claims 2 and 4 were rejected under 35 U.S.C. §103(a) as unpatentable over Lyon and Bonomi in further view of Admitted Prior Art.

Claims 2 and 4 are dependent claims that depend from independent claim 1. Since claims 1 is believed to be allowable for the reasons discussed above, claims 2 and 4 are also believed to be allowable.

In the event that the Examiner deems personal contact desirable in disposition of this case, the Examiner is encouraged to call the undersigned attorney at (617) 951-2500.

All independent claims are believed to be in condition for allowance.

All dependent claims are believed to be dependent from allowable independent claims.

The Applicant respectfully solicits favorable action.

Please charge any additional fee occasioned by this paper to our Deposit Account No. 03-1237.

Respectfully submitted,

James A. Blanchette
Reg. No. 51,477
CESARI AND MCKENNA, LLP
88 Black Falcon Avenue
Boston, MA 02210-2414
(617) 951-2500

ABSTRACT OF THE DISCLOSURE

A switching fabric sets a congestion indicator bit (EFCI bit) in an ATM cell if any queue through which the ATM cell passes is filled above a lower threshold. A Traffic Manager monitors the field of the EFCI bit as cells arrive at an output port of the switching fabric. The traffic manager periodically calculates the ratio of ATM cells having the EFCI congestion bit set to all ATM cells routed to a particular output port. The periodically calculated ratio is used as an input parameter to a Random Early Detection (RED) algorithm. The RED algorithm selects a cell for the switch fabric to drop, by use of a random selection method. The destination computer then does not receive the packet since cells forming part of the packet have been discarded.